

Appl. No. 09/924,016
Amdt. dated January 23, 2004
Reply to Office action of October 31, 2003

REMARKS

Applicants respectfully request entry of this Amendment and reconsideration of this application, as amended. Claims 1-31 remain in the application.

Rejections Under 35 USC 112

Claims 17 and 18 have been rejected under 35 USC § 112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter which applicants regard as the invention. The term "selected from" has been changed to "selected from the group consisting of," thus obviating the above rejection.

Claims 1-23 have been rejected under 35 USC § 112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter which applicants regard as the invention. The term "type" and "types" have been deleted from the claims, thus obviating the above rejection.

In addition, the dependency of each of claims 8 and 9 has been corrected.

Rejections Under 35 USC 102/103

Claims 1-31 have been rejected under 35 USC § 102(b) as being anticipated by, or in the alternative, under 35 USC § 103 (a) as being obvious over WO 98/15496 (equivalent to U.S. Patent No. 6,334,994 to Wendelbo et al.). In particular, the Examiner argues that WO 98/15496 discloses a microporous crystalline silicoaluminophosphate composition prepared by combining at least one portion of an aluminum source and a phosphorus source with water, a silicon source and an organic template material, and treating the mixture by heating in an autoclave at a temperature of 180 to 260°C for at least one hour. According to the Examiner, the

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silicoaluminophosphate composition prepared according to the process of WO 98/15496 would inherently possess the properties recited in applicant's claims, since the first full paragraph on page 9 of the present specification is evidence that silicoaluminophosphates prepared by submitting a mixture comprising a reactive source of silicon, a reactive source of aluminum and a reactive source of phosphorus, in the presence of an organic structure directing agent (template) to hydrothermal treatment under autogenous pressure, will possess the properties as recited in the claims.

This rejection is respectfully traversed.

Thus it is clear from the specification as a whole that the first full paragraph on page 9 provides merely a general overview of the process of producing the claimed silicoaluminophosphate molecular sieve. Thus, for example, the remainder of page 9 provides further details of the synthesis process summarized in the first paragraph. Moreover, it is respectfully submitted that no argument based on the inherency of the product properties can possibly be supported unless the exact process disclosed in the prior art is identical or substantially identical to the exact process employed in the present application. In the case of WO 98/15496, there is clearly no such identity since in each of the relevant Examples 1 to 3 of the prior art an aluminum phosphate gel is initially formed by combining the aluminum and phosphorus sources in the absence of the silicon source (see preferred embodiment discussed on page 5, lines 1 and 2). In contrast, as described on page 9 and exemplified in each of the relevant Examples 1 to 7 of the present application, the reaction mixture is produced by mixing reactive sources of silica, alumina, phosphorus and the organic structure directing agent without the formation of an initial aluminum phosphate gel. In fact, in each of the inventive Examples 1 to 8, the alumina source is added last or almost last. Moreover, the molar ratios of the reactive components and the

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crystallization temperatures are completely different in the present Examples 1 to 8 as compared with Examples 1 to 3 of WO 98/15496.

Moreover, the fact that the properties of the product of WO 98/15496 are different from those of the claimed product is evident from Figures 3 and 5 of the present application (see also pages 4 and 20-21), which show the differences in x-ray diffraction patterns between the silicoaluminophosphate of WO 98/15496 and the material of the present invention. Claim 1, as currently amended, recites a diffraction peak in the 17.7 to 18.1 (2 θ) range. There is no characteristic x-ray diffraction peak in the 17.7 to 18.1 (2 θ) range in WO 98/15406 or in the equivalent U.S. Patent No. 6,334,934. Thus, the reference lacks the positive recitation required of an anticipating reference as well as any teaching of obviousness. In view of the above, withdrawal of the rejections based on WO 98/15496 is respectfully requested.

Claims 1-31 have been rejected under 35 USC § 102(b) as being anticipated by, or in the alternative, under 35 USC § 103 (a) as being obvious over U.S. Patent No. 5,324,493 to Mueller et al. In particular, the Examiner argues that Mueller et al. disclose a method for preparing silicoaluminophosphates under hydrothermal conditions using 1,2 bis-(4-pyridyl)-ethane as the organic template for the crystallization. According to the Examiner, it would be expected that the silicoaluminophosphate composition prepared according to the process of Mueller et al. would possess the characteristics as recited in applicant's claims, since applicant's specification provides evidence on page 9 that a silicoaluminophosphate composition possessing the characteristics as recited in applicant's claims is formed when subjecting a mixture comprising a reactive source of silicon, a reactive source of aluminum and a reactive source of phosphorus to hydrothermal treatment under autogenous pressure and in the presence of an organic structure directing agent.

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This rejection is respectfully traversed.

Thus, as discussed above, the Examiner has taken the first paragraph of page 9 out of context and has ignored the other synthesis teachings provided in the remainder of applicants' specification. For example, page 9, lines 13 to 19 lists a number of suitable structure directing agents for producing the silicoaluminophosphate of the present invention. In contrast, the only structure directing agent disclosed by Mueller et al. is 1,2-bis-(4-pyridyl)-ethane which is different from those listed in the present application. For this reason alone, it is respectfully submitted that no argument based on inherency can be sustained.

In addition, the product produced by Mueller et al. is said to have the AEL structure and to have an X-ray diffraction pattern containing at least the interplanar spacings (d in Angstroms) stated in Table 1. In contrast, claim 1, as currently amended, is directed to a material having an AEI/CHA intergrowth structure and requires the material to have a diffraction peak in the 17.7 to 18.1 (2 θ) range. There is no characteristic x-ray diffraction peak in the 17.7 to 18.1 (2 θ) range in Mueller et al. (See Table 1 of Mueller et al). Thus, the reference lacks the positive recitation required of an anticipating reference and is devoid of any teaching of obviousness. In view of the above, withdrawal of the rejections based on Mueller et al. is respectfully requested.

Claims 1-15 and 24-31 have been rejected under 35 USC § 102(e) as being anticipated by, or in the alternative, under 35 USC § 103 (a) as obvious over U.S. Patent No. 6,294,493 to Strohmaier et al. In particular, the Examiner argues that Strohmaier et al. disclose a method for producing silicoaluminophosphates by hydrothermally treating under autogenous

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pressure a mixture comprising a reactive source of silicon, a reactive source of aluminum and a reactive source of phosphorus, in the presence of an organic structure directing agent such as di-n-propylamine or diisopropylamine. According to the Examiner, the silicoaluminophosphates produced according to the process of Strohmaier et al. would inherently possess the properties as recited in applicant's claims, since page 9 of applicant's specification provides evidence that hydrothermally treating a mixture comprising a reactive source of silicon, a reactive source of aluminum and a reactive source of phosphorus under autogenous pressure will form a silicoaluminophosphate having the characteristics as recited in applicant's claims, when employing dipropylamine as the organic structure directing agent.

This rejection is respectfully traversed.

Thus, as previously stated, an argument that product properties must inherently be the same can only be sustained if the exact process used to produce the product in the prior art is identical or substantially identical to the exact process employed to produce the claimed product. However, in Strohmaier et al., most of the Examples employ a surfactant, such as hexadecylamine, an ethanol co-solvent and/or microwave heating, none of which are employed in the inventive Examples. In addition, the Examples which employ conventional heating in Strohmaier et al. effect crystallization at higher temperatures than that used in the inventive Examples.

Moreover, the fact the product properties are different is evident from the fact that the silicoaluminophosphate of Strohmaier et al. has an AEL structure and an x-ray diffraction pattern shown in Figures 4 and 5. Claim 1, currently amended, recites a diffraction peak in the 17.7 to 18.1 (2 θ) range. There is no characteristic x-ray diffraction peak in the 17.7 to 18.1 (2 θ) range

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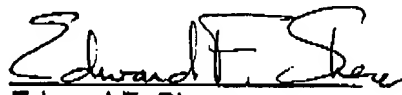
in Strohmaier et al. Thus, the reference lacks the positive recitation required of an anticipating reference or any teaching of obviousness. In view of the above, withdrawal of the rejection is respectfully requested.

None of the references relied on by the Examiner in the rejection of claims 1-31 under 35 USC § 102 (b), 102 (e), and/or 103 (a) either alone or in combination teaches Applicants' invention as now claimed. In view of the foregoing remarks, it is respectfully submitted that the present claims meet the requirements of patentability. Applicants therefore respectfully request that a timely Notice of Allowance be issued in this case.

Any comments or questions concerning the application can be directed to the undersigned at the telephone number given below.

Respectfully submitted,

Jan. 23, 2004
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